

The Osteological Paradox: Absence of Evidence is not Evidence of Absence

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Abstract

During the summer 2019 field season, ten human skeletons were excavated from the ongoing project (PAH-178) at the Hospital Hill Royal Navy Cemetery that was operational between the years of 1793-1822 on the island of Antigua, near English Harbour. As a student of Dr. Trenea Swanston, a professor of MacEwan University, and one of the researchers invested in the project, I was hired as a research assistant and excavating archaeologist to assist with analyzing the skeletal remains excavated from a burial site associated with the Royal Navy Hospital for evidence of pathological changes.

In studying disease on skeletal remains, paleopathologists look for evidence of skeletal changes or lesions associated with pathological conditions. In order for skeletal changes to occur, an individual must live with a disease or illness for an extended period of time, meaning those who succumb quickly will typically not show any skeletal evidence of bony changes or pathologies. This is known as the osteological paradox. However, we did not find any evidence of pathological changes at site PAH-178 during the 2019 field season.

Introduction: The Site (PAH-178)

The cemetery is associated with a colonial British Royal Navy hospital which dates between 1793-1822 (Image 1). The area in which the site is located is now a residential neighbourhood situated not far from English Harbour (Image 2). The skeletal remains associated with the cemetery are at risk of destruction due to necessary residential construction in the area. The ongoing archaeological research in the area has mitigated issues between the growing needs of the modern community alongside ethical conservation of the skeletal remains and the importance of the site to the history of the island.

Methodology

Over three weeks, six archaeology students worked six days a week to excavate at the site of the Hospital Hill cemetery on Hospital Hill Road, Antigua. At least ten human skeletons were excavated from the west side of the property. As careful excavation of the human remains occurred, photographs were taken of each individual and we did visual analysis of all bones and bone fragments for evidence of changes or abnormalities before packing up the skeletal elements for further analysis and cataloging and eventual reburial.

Bone Remodeling

Bone is a living tissue that undergoes continuous remodeling throughout life necessary for structural integrity, healing, and for its metabolic functions. Mature bone is removed by a process called bone resorption, and new bone tissue is formed by a process called bone ossification.

Bone changes seen in paleopathology are usually representative of chronicity, meaning that an individual would have had to live with a condition for a period of time for which bone changes to occur, that the body reacted to said condition by forming and/or destroying bone.

An individual with evidence of skeletal changes or abnormalities may represent a healthier individual than one without any evidence of skeletal changes or abnormalities, as they may have succumbed to a given disease far earlier than the individual with skeletal changes present (Wood et al., 1992).

Results

No evidence of pathological skeletal changes were found on the remains excavated from PAH-178 except for evidence of a healed radial fracture where thickened bone can be seen along the shaft of a right radius below the radial tuberosity on individual G35-B1 (Image 3). This fracture would not have been associated with the death of the individual as the bone had long since healed. The fracture may have occurred in adolescence, due to the complete, although improper, healing of the fracture and the likely young age of the individual. No evidence of infectious disease or other evidence of premortem trauma or damage was found on the ten individuals.

Discussion

In carrying out the excavation we noticed the remains appeared to be those of relatively young individuals at their time of death. Their teeth were in surprisingly good condition - although preservation of the bone was poor - along with nearly no evidence of bony changes we surmised that the population of the gravesite comprised of young military personnel, enslaved individuals, and others. This gravesite is unique in that it held the remains of not only British Royal Navy members, but also those of African and Afro-Caribbean enslaved individuals, something not seen elsewhere in cemeteries of the era (Varney, 2011).

History tells us that during the colonial efforts in the Caribbean, many individuals perished from various infectious diseases. English Harbour was often called the "Grave of the Englishman" since so many officers perished from tropical disease, and this loss of men was the highest of military campaigns at the time. These diseases would have quickly wiped out large numbers of sailors, who were more susceptible to tropical diseases such as yellow fever. African enslaved persons were brought to the Caribbean to provide labour for sugar plantations, which proved advantageous for the British, as African peoples appeared to be somewhat more immune to tropical diseases such as malaria and yellow fever (Wiley and Allen, 2017). This unfortunately encouraged the rhetoric that African peoples were well-suited for slavery.

Conclusion

Individuals interred at the Hospital Hill Royal Navy Cemetery in Antigua who were brought to the West Indies to assist in Britain's colonial efforts succumbed quickly to tropical diseases upon reaching the Caribbean. Large numbers of individuals perished daily, and were buried at the cemetery associated with the hospital, which is now a residential neighbourhood.

As no evidence was found on the ten individuals excavated from PAH-178 of bony changes associated with disease, it is clear that the individuals quickly perished upon being infected with tropical diseases. These individuals, although seemingly young, may have been weakened by long periods at sea from Britain to the West Indies, which may have played a part in their mortality.

While the team did not find any evidence of pathologies, important work was still accomplished as necessary residential development for the community can continue in the area, and skeletal remains were ethically recovered to continue to further our understanding of colonial life in Antigua, and for reburial at a more appropriate location in the future.



Image 3. G35-B1 Right Radial Healed Fracture [Personal photograph taken in Antigua, West Indies]. (2019, June 28).

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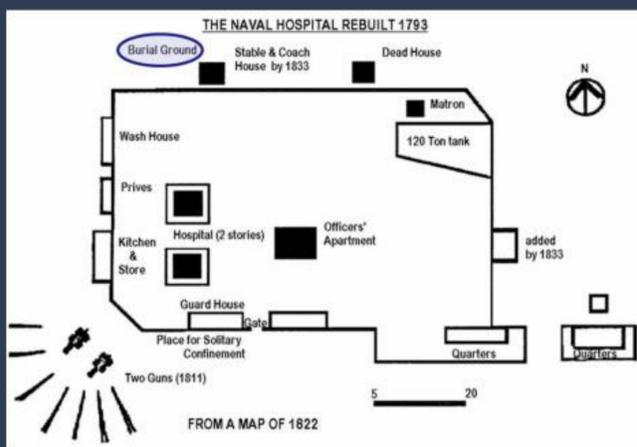


Image 1. [Naval Hospital Map from 1822 Digital Recreation], (n.d.). Retrieved April 21, 2020, from https://www.royalnavycemeteryantigua.com/store/c1/Featured_Products.html



Image 2. English Harbour from Shirley Heights [Personal photograph taken in Antigua, West Indies]. (2019, June 20).